REQUEST
for
PH.D. DUAL-TITLE DEGREE IN OPERATIONS RESEARCH

Students: Fill in this application as applicable. Have the form signed by the Professor-in-Charge of the Graduate Major Program and forward it to the Chairperson of Operations Research. The Committee on Operations Research will approve or disapprove the request. The Graduate School will be notified if the request is approved.

Name _____
Last First Middle initial

SSN _____ **PSU-ID** _____ **E-mail**_____

Graduate Program Major _____

B.A./B.S. _____
Degree Major Institution Date

M.A./M.S. _____
Degree Major Institution Date

Request for Program Admittance Approved by Professor-in-Charge of Graduate Major

_____
Signature Date

Request for Program Admittance Approved by Chairperson, Operations Research

_____
Signature Date

Doctoral Committee: (The information below does not have to be filled in if not known at the time of application.)

Chairperson (Approved by OR Committee): _____

Member (Approved by OR Committee): _____

Member Outside Graduate Major Program: _____
(Approved by OR Committee)

Member: _____

Member (Optional): _____

Admitted to Ph.D. Candidacy: _____ **Passed Ph.D. Comprehensive:** _____
Month/Day/Year Month/Day/Year

Dissertation (One bound copy **MUST** be filed with the Chairperson, Operations Research)

Title _____

Date Accepted _____

COURSE REQUIREMENTS
for
THE PH.D. DUAL-TITLE DEGREE IN OPERATIONS RESEARCH

PREREQUISITES:

I. Calculus (MATH 140, 141) _____
II. Linear Algebra (MATH 220) _____
III. Computer Programming (CMPSC 101, 201 or 203) _____
IV. Probability and Statistics (3 credits) _____

REQUIREMENTS (36 credits Minimum, At Least 18 credits at the 500 Level):

STOCHASTIC METHODS/STATISTICAL METHODS (9 credits min)

Statistical Methods (3 credits min)	Stochastic Processes (3 credits min)	
MATH/STAT 414, 415, 418	IE/SC&IS 516	
IE 511, 583, 584	MATH/STAT 416, 516, 519	_____
SC&IS 535	STAT 515	
STAT 460, 501, 502, 503		_____
ECON 501		
AEREC/ECON 510, 511		

OPTIMIZATION (9 credits min)

Linear Programming (3 credits min)	Nonlinear Programming	
IE 405, BA 450, MATH 484	IE 521	_____
IE 505	MATH 549	
AEREC 527		_____

Integer Programming	Dynamic Programming	
IE 510	IE/SC&IS 519	_____

Mathematical Programming
MATH/CSE 555
IE 468, 512, 520
SC&IS 525

COMPUTATIONAL METHODS (6 credits min)

Numerical Methods	Simulation Methods (3 credits min)	
MATH/CSE 451, 455, 456,	IE 453, BA/OISM 455	
MATH/CSE 550, 553	IE 522, 540	_____
	SC&IS 545	

OPEN AREAS – APPLICATIONS/SPECIALIZATION (12 credits min)

Includes any of the above courses as well as courses in information systems, quality control, scheduling, inventory, queueing, decision analysis, game theory, graph theory, supply chain, expert systems, econometrics, forecasting, and others:

ABE 469W, 559; AEREC 501 ASM 429W; BA 427; CSE 460, 465, 565, 560, 555, _____
CSE 563, 564; ECON 521, EE 529/ EE581; ERM 412; GEOG 425, 455,481, 580, 581; _____
IE 402, 425, 454, 507, 509, 532, 554, 562, 566; MATH 485,486; _____
MEM 510; MKTG 511,555; MNPR 520; PNG 430,512,514; STAT 510,540; _____
SC&IS 505,510,520,530.

In addition, students must enroll in O R 590 Colloquium for 1 credit in each year enrolled in the major graduate program and in residence. The maximum number of OR 590 credits required for a Ph.D dual title student is 4.
Equivalent courses are separated by ",". Only one of such courses will be counted towards requirements.
It is to be understood that whenever a specific course is given, the words "or the equivalent" should be read after the listing. Any particular course may satisfy both the graduate major program and those in the Operations Research Program.